

Remarks

I. The Amendment to the Claims

The Office communication states:

2. The applicant is advised to correct the dependency of claims 47 and 48 (claim 47 should depend on claim 46 and claim 48 should depend on claim 41), so that the claim tree of the pending application matches the claim's tree of the patent 6,246,683 (The applicant tried to fix the lack of antecedent issues by rewriting the dependency of the claims, but rather to change the indefinite article of the claim).

Applicants have amended the claims as suggested by the Office Action. Claim 47 has been amended to depend from claim 46 instead of from claim 44, and to include an indefinite article preceding the term "plurality of packets." Similarly, claim 48 has been amended to depend from claim 41 instead of from claim 45, and to include an indefinite article preceding the term "block of data."

II. The Suggestion of Interference

The Office communication states:

3. The applicant is therefore advised to redraft the suggestion of the interference to correct the grouping of claims in the counts.

The following is a redrafting of the suggestion of interference, taking into account the Amendment to the Claims.

A. Identification of Interfering Claims

Applicants submit that the following claims interfere with claims 1-9 of the '683 patent:

Pending claims 41-49.

B. Proposed Counts

As stated in the Reply dated January 27, 2010, applicants propose the following three counts:

Count 1. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising:

receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet;

determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer.

Count 2. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising:

receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet;

determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer;

including prior to receiving the packet, allocating the target buffer for a plurality of packets, and notifying the network interface of the allocated target buffer.

Count 3. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising:

receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet;

determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer;

wherein the network interface is coupled to a network medium supporting a maximum packet size, and including transmitting a request from an application for transfer of a block of data from the data source, the block of data having a length greater than the maximum packet size for the medium.

C. Comparison of at least One Claim of Each Party to Each Count

Count 1 above is the same as claim 1 of the '683 patent, except that the term "communication control information" is substituted for the term "flow specification" of the claim. Count 1 above is also the same as claim 41 of the present application, except that the term "communication control information" is substituted for the term "transmit control block (TCB)" of the claim.

Count 2 above is the same as claim 4 of the '683 patent written in independent form, except that the term "communication control information" is substituted for the term "flow specification" of the claim, and the definite article "the" preceding the term "plurality of packets" in claim 4 is replaced with the indefinite article "a." Count 2 above is also the same as claim 44 of the '683 patent written in independent form, except that the term "communication control information" is substituted for the term "transmit control block (TCB)" of the claim.

Count 3 above is the same as claim 5 of the '683 patent written in independent form, except that the term "communication control information" is substituted for the term "flow specification" of the claims, and the term "potentially" is deleted in the Count. Count 3 above is also the same as claim 45 of the '683 patent written in independent form, except that the term "communication control information" is substituted for the term "transmit control block (TCB)" of the claim.

D. Showing of Claim Correspondence to Counts

The table on the following page shows how the claims in the present application and those of the '683 patent correspond to the Counts.

Claim Correspondence to Counts

Count Number	Claims in the '683 patent that correspond to the count	Claims in the application that correspond to the count
Count 1	Claims 1-3, 8 and 9	Claims 41-43, 48 and 49
Count 2	Claim 4	Claim 44
Count 3	Claims 5-7	Claims 45-47

E. Comparison of Each Party's Claims and the Counts

Applicants below submit a claim chart comparing claims 1-9 of the '683 patent with the Counts, a claim chart comparing claims 41-49 of the present application with the Counts, and a claim chart showing why the claims interfere within the meaning of 37 CFR 41.203(a).

i. Claim Chart Comparing Claims 1-9 of the '683 Patent with the Counts

Applicants submit the following claim chart comparing claims 1-9 of the '683 patent with the Counts.

'683 Patent Claim Correspondence to Counts

Count	Claims in the '683 patent that correspond to the Count
Count 1. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising: receiving in the network interface a packet which	1. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising: receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet; determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet directly to a target buffer assigned by a

<p>carries a data payload from a block of data in the data source, and a control field identifying the packet;</p> <p>determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer.</p>	<p>process at a layer higher than the network layer.</p> <p>Claim 1 is identical to Count 1, except for the term “communication control information” in the Count compared with the term “flow specification” in the claim.</p> <p>Applicants submit that Count 1 would have anticipated or rendered obvious claim 1, and vice-versa. For example, claim 7, which depends indirectly from claim 1, defines that the “flow specification” includes “a sequence number of a first byte from the plurality of packets to be stored in the target buffer.” Similarly, claim 8, which depends from claim 1, defines that the “flow specification” includes “a sequence number for the block of data.” Claim 9, which depends indirectly from claim 1, defines that the “flow specification” includes “IP source and destination addresses and TCP port numbers.” A “sequence number of a first byte from the plurality of packets to be stored in the target buffer,” a “sequence number for the block of data” and “IP source and destination addresses and TCP port numbers” are all “communication control information.” The specification of the ‘683 patent also supports this definition (see, e.g., column 5, lines 8-15). Indeed, there is no teaching or suggestion in the ‘683 patent that the “flow specification” is anything other than “communication control information.” Therefore, Count 1 would have anticipated and rendered obvious claim 1, and vice-versa.</p>
	<p>2. The method of claim 1, wherein the control field in the packet includes a packet header.</p> <p>Applicants submit that Count 1 would have rendered obvious claim 2, because a person having ordinary skill in the art would have thought that a “control field identifying a packet” would commonly be a “packet header.”</p>
	<p>3. The method of claim 1, wherein the multi-layer network protocol comprises TCP/IP, and the control field comprises a TCP/IP header.</p> <p>Applicants submit that Count 1 would have rendered obvious claim 3, because TCP/IP was a common network protocol and header type.</p>
	<p>8. The method of claim 1, wherein the flow specification</p>

	<p>includes a sequence number for the block of data.</p> <p>Applicants submit that Count 1 would have rendered obvious claim 8, because sequence numbers are a common way to identify data that is transferred over a network. For example, TCP is known to require a control block of “communication control information,” sometimes called a TCB, which includes sequence numbers that are used for various tasks including flow control.</p> <p>9. The method of claim 8, wherein the flow specification includes IP source and destination addresses and TCP port numbers.</p> <p>Applicants submit that Count 1 would have rendered obvious claim 9, because IP source and destination addresses and TCP port numbers are a common way to identify network data flows. For example, TCP is known to require a control block of “communication control information,” sometimes called a TCB, which includes IP source and destination addresses and TCP port numbers.</p>
<p>Count 2. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising:</p> <p>receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet;</p> <p>determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet directly to a target buffer</p>	<p>4. The method of claim 1, including prior to receiving the packet, allocating the target buffer for the plurality of packets, and notifying the network interface of the allocated target buffer.</p> <p>Claim 4, written in independent form to include the limitations of claim 1, is essentially identical to Count 2, except for the term “communication control information” in the Count compared with the term “flow specification” in the claim. Applicants note that claim 4 also has the definite article “the” preceding the term “plurality of packets,” whereas Count 2 instead has the indefinite article “a” preceding the term “plurality of packets.”</p> <p>As noted above regarding claim 1, a “flow specification” is defined to include various items of “communication control information,” and there is no teaching or suggestion in the ‘683 patent that the “flow specification” is anything other than “communication control information.” For these reasons, applicants submit that Count 2 would have anticipated or rendered obvious claim 4, and vice-versa.</p>

<p>assigned by a process at a layer higher than the network layer; including prior to receiving the packet, allocating the target buffer for a plurality of packets, and notifying the network interface of the allocated target buffer.</p>	
<p>Count 3. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising: receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet; determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer; wherein the network interface is coupled to a network medium supporting a maximum packet size, and including transmitting a request from an application for transfer of a block of data from the data source,</p>	<p>5. The method of claim 1, the network interface is coupled to a network medium supporting a maximum packet size, and including transmitting a request from an application for transfer of a block of data from the data source, the block of data having a length potentially greater than the maximum packet size for the medium.</p> <p>Claim 5, written in independent form to include the limitations of claim 1, is essentially identical to Count 3, except for the term "communication control information" in the Count compared with the term "flow specification" in the claim.</p> <p>As noted above regarding claim 1, a "flow specification" is defined to include various items of "communication control information," and there is no teaching or suggestion in the '683 patent that the "flow specification" is anything other than "communication control information." For these reasons, applicants submit that Count 3 would have anticipated and rendered obvious claim 5, and vice-versa.</p>

<p>the block of data having a length potentially greater than the maximum packet size for the medium.</p>	
	<p>6. The method of claim 5, including notifying the network interface in response to the request of a flow specification for the block of data according to the multi-layer network protocol, and wherein the step of receiving the packet includes identifying packet using the flow specification.</p> <p>Claim 6, written in independent form to include the limitations of claim 5, is similar to Count 3, but rewritten claim 6 also includes the limitation "including notifying the network interface in response to the request of a flow specification for the block of data according to the multi-layer network protocol, and wherein the step of receiving the packet includes identifying packet using the flow specification."</p> <p>Applicants submit that Count 3 would have anticipated or rendered obvious claim 6, because Count 3 recites "determining based on the control field in the network interface whether the packet matches communication control information," whereas claim 6 recites in part "notifying the network interface ...of a flow specification" and "identifying packet using the flow specification." Assuming the "flow specification" element equates to "communication control information," as explained above regarding claim 1, "notifying" and "identifying (a) packet using" this element would seem to be inherent in "determining based on the control field in the network interface whether the packet matches communication control information." If somehow this is not considered inherent, it would have been obvious to "notify... the network interface ...of a flow specification" and "identify... (a) packet using the flow specification" to accomplish the recitation of "determining based on the control field in the network interface whether the packet matches communication control information."</p>
	<p>7. The method of claim 6, wherein the network protocol comprises TCP/IP, and the flow specification includes a sequence number of a first byte from the plurality of packets to be stored in the target buffer.</p>

	<p>Applicants note that claim 7 depends from claim 6, but claim 6 lacks antecedent basis for the term “the plurality of packets.”</p> <p>Claim 7, written in independent form to include the limitations of claim 4, is similar to Count 3, but rewritten claim 7 also includes the limitation “wherein the network protocol comprises TCP/IP, and the flow specification includes a sequence number of a first byte from the plurality of packets to be stored in the target buffer.”</p> <p>TCP/IP was a well known network protocol, which used sequence numbers to identify all bytes of data flow. For example, TCP is known to require a control block of “communication control information,” sometimes called a TCB, which includes sequence numbers that are used for various tasks including flow control, which would necessarily include a “sequence number of a first byte from the plurality of packets.” As discussed above for claim 1, the “flow specification” element equates to “communication control information.” Thus, the use of the well known network protocol TCP, which would have been obvious, would have required the claimed sequence number as part of the “flow specification” that is “communication control information” and so Count 3 would have rendered obvious claim 7.</p>
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ii. Claim Chart Comparing Pending Claims 41-49 with the Counts

Applicants submit the following claim chart comparing pending claims 41-49 with the Counts.

Pending Claim Correspondence to Counts

Count	Claims in the present application that correspond to the Count
Count 1. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a	41. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising: receiving in the network interface a packet which

<p>network layer and at least one higher layer, through a network interface on the end station, comprising:</p> <p>receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet;</p> <p>determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer.</p>	<p>carries a data payload from a block of data in the data source, and a control field identifying the packet;</p> <p>determining based on the control field in the network interface whether the packet matches a transmit control block (TCB), and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer.</p> <p>Claim 41 is identical to Count 1, except for the term “communication control information” in the Count compared with the term “transmit control block (TCB)” in the claim.</p> <p>Applicants submit that Count 1 would have anticipated or rendered obvious claim 41, and vice-versa. For example, claim 47, which depends indirectly from claim 1, defines that the “TCB” includes “a sequence number of a first byte from the plurality of packets to be stored in the target buffer.” Similarly, claim 48, which depends from claim 41, defines that the “TCB” includes “a sequence number for the block of data.” Claim 49, which depends indirectly from claim 41, defines that the “TCB” includes “IP source and destination addresses and TCP port numbers.” A “sequence number of a first byte from the plurality of packets to be stored in the target buffer,” a “sequence number for the block of data” and “IP source and destination addresses and TCP port numbers” are all “communication control information.” The specification of parent application number 60/061,809 (the ‘809 app.), which was incorporated by reference in the present application, also supports the conclusion that the TCB includes “communication control information.” See, e.g., page 6, line 32 – page 7, line 10.</p> <p>42. The method of claim 41, wherein the control field in the packet includes a packet header.</p> <p>Applicants submit that Count 1 would have rendered obvious claim 42, because a person having ordinary skill in the art would have thought that a “control field identifying a packet” would commonly be a “packet header.”</p> <p>43. The method of claim 41, wherein the multi-layer network protocol comprises TCP/IP, and the control field comprises a TCP/IP header.</p>
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	<p>Applicants submit that Count 1 would have rendered obvious claim 43, because TCP/IP was a common network protocol and header type.</p> <p>48. The method of claim 41, wherein the TCB includes a sequence number for a block of data.</p> <p>Applicants submit that Count 1 would have rendered obvious claim 48, because sequence numbers are a common way to identify data that is transferred over a network. For example, TCP maintains a control block, sometimes called a TCB, which includes sequence numbers that are used for various tasks including flow control. Sequence numbers are thus known to be “communication control information” like that defined in Count 1.</p>
	<p>49. The method of claim 48, wherein the TCB includes IP source and destination addresses and TCP port numbers.</p> <p>Applicants submit that Count 1 would have rendered obvious claim 49, because IP source and destination addresses and TCP port numbers are a common type of “communication control information.” For example, TCP maintains a control block, sometimes called a TCB, which includes “IP source and destination addresses and TCP port numbers” that are used for various tasks including identification and control of network data flows. “IP source and destination addresses and TCP port numbers” are thus known to be “communication control information” like that defined in Count 1.</p>
<p>Count 2. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising: receiving in the network interface a packet which</p>	<p>44. The method of claim 41, including prior to receiving the packet, allocating the target buffer for a plurality of packets, and notifying the network interface of the allocated target buffer.</p> <p>Claim 44, written in independent form to include the limitations of claim 41, is essentially identical to Count 2, except for the term “communication control information” in the Count compared with the term “TCB” in the claim. As noted above, the term “TCB” includes “communication control information.”</p>

<p>carries a data payload from a block of data in the data source, and a control field identifying the packet;</p> <p>determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer;</p> <p>including prior to receiving the packet, allocating the target buffer for a plurality of packets, and notifying the network interface of the allocated target buffer.</p>	<p>Applicants submit that Count 2 would have anticipated or rendered obvious claim 44, and vice-versa.</p>
<p>Count 3. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising:</p> <p>receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet;</p> <p>determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet</p>	<p>45. The method of claim 41, the network interface is coupled to a network medium supporting a maximum packet size, and including transmitting a request from an application for transfer of a block of data from the data source, the block of data having a length greater than the maximum packet size for the medium.</p> <p>Claim 45, written in independent form to include the limitations of claim 41, is essentially identical to Count 3, except for the term "communication control information" in the Count compared with the term "TCB" in the claim. As noted above, the term "TCB" includes "communication control information."</p> <p>Applicants submit that Count 3 would have anticipated or rendered obvious claim 45, and vice-versa.</p>

<p>directly to a target buffer assigned by a process at a layer higher than the network layer; wherein the network interface is coupled to a network medium supporting a maximum packet size, and including transmitting a request from an application for transfer of a block of data from the data source, the block of data having a length potentially greater than the maximum packet size for the medium.</p>	
	<p>46. The method of claim 45, including notifying the network interface in response to the request of the TCB for the block of data according to the multi-layer network protocol, and wherein the step of receiving the packet includes identifying packet using the TCB.</p> <p>Claim 46, written in independent form to include the limitations of claim 45, is similar to Count 3, but rewritten claim 46 also includes the limitation "including notifying the network interface in response to the request of a TCB for the block of data according to the multi-layer network protocol, and wherein the step of receiving the packet includes identifying packet using the TCB."</p> <p>Applicants submit that claim 46 would have anticipated or rendered obvious Count 3, because Count 3 recites "determining based on the control field in the network interface whether the packet matches communication control information," whereas claim 46 recites in part "notifying the network interface ... of a TCB" and "identifying a packet using the TCB." Assuming the "TCB" element includes "communication control information," as explained above regarding claim 41, "notifying" and "identifying a packet using" this element would seem to be inherent in "determining based on the control field in the network interface whether the packet matches the TCB." If somehow this is not considered inherent, it would have been obvious to "notify... the network interface ... of communication control information" and "identify... (a) packet using the</p>

	communication control information to accomplish the recitation of “determining based on the control field in the network interface whether the packet matches the TCB.”
	<p>47. The method of claim 46, wherein the network protocol comprises TCP/IP, and the TCB includes a sequence number of a first byte from a plurality of packets to be stored in the target buffer.</p> <p>Claim 47, written in independent form to include the limitations of claim 44, is similar to Count 2, but rewritten claim 47 also includes the limitation “wherein the network protocol comprises TCP/IP, and the TCB includes a sequence number of a first byte from the plurality of packets to be stored in the target buffer.”</p> <p>TCP/IP was a well known network protocol, which used sequence numbers to identify all bytes of data flow. For example, TCP is known to require a control block of “communication control information,” sometimes called a TCB, which includes sequence numbers that are used for various tasks including flow control, which would necessarily include a “sequence number of a first byte from the plurality of packets.” As discussed above for claim 41, the “TCB” element equates to “communication control information.” Thus, the use of the well known network protocol TCP, which would have been obvious, would have required the claimed sequence number as part of the “TCB” that is “communication control information” and so claim 47 would have rendered obvious Count 3.</p>

iii. Claim Chart Comparing Claims 1-9 of the ‘683 Patent with Pending Claims 41-49

The Office communication states:

4. The applicant should provide evidence to support the conclusion of obviousness of the claim mappings. Specifically the applicant should support evidence why it is obvious to use a transmit control block (TCB) in the pending claims instead of a flow specification in the patent (6,246,683) and vice versa.

Applicants submit the following claim chart comparing claims 1-9 of the '683 patent with pending claims 41-49, including intrinsic evidence from the '683 patent and from the pending application.

Claims 1-9 of the '683 Patent Claims Compared to the Pending Claims

Claim in the '683 Patent	Pending Claim
<p>1. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising:</p> <p style="padding-left: 40px;">receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet;</p> <p style="padding-left: 40px;">determining based on the control field in the network interface whether the packet matches communication control information, and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer.</p> <p>Pending claim 41 is identical to claim 1 of the '683 patent, except for the term "transmit control block (TCB)" in claim 41 compared with the term "flow specification" in claim 1.</p> <p>Applicants submit that pending claim 41 would have rendered obvious claim 1 of the '683 patent. For example, claim 47, which depends indirectly from claim 41, defines that the "TCB" includes "a sequence number of a first byte from the plurality of packets to be stored in the target buffer," whereas claim 7, which depends indirectly from claim 1, defines that the "flow specification" includes the exact same things. Similarly, claim 48, which depends from claim 41, defines that the "TCB" includes "a sequence number</p>	<p>41. A method for transferring data on a network from a data source to an end station executing a multi-layer network protocol, including a network layer and at least one higher layer, through a network interface on the end station, comprising:</p> <p style="padding-left: 40px;">receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet;</p> <p style="padding-left: 40px;">determining based on the control field in the network interface whether the packet matches a transmit control block (TCB), and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer.</p> <p>Claim 1 of the '683 patent is identical to pending claim 41, except for the term "flow specification" in claim 1 compared with the term "transmit control block (TCB)" in claim 41.</p> <p>Applicants submit that claim 1 of the '683 patent may have rendered obvious pending claim 41. For example, claim 7, which depends indirectly from claim 1, defines that the "flow specification" includes "a sequence number of a first byte from the plurality of packets to be stored in the target buffer," whereas claim 47, which depends indirectly from claim 41, defines that the "TCB" includes the exact same things. Similarly, claim 8, which depends from claim 1, defines that the "flow specification" includes "a sequence number</p>

for the block of data,” whereas claim 8, which depends from claim 1, defines that the “flow specification” includes the exact same things. Further, claim 49, which depends indirectly from claim 41, defines that the “TCB” includes “IP source and destination addresses and TCP port numbers,” whereas claim 9, which depends indirectly from claim 1, defines that the “flow specification” includes the exact same things. Thus, the only terms that differ between pending claim 41 and claim 1 of the ‘683 patent actually are defined to include the same items.

Moreover, according to page 6, lines 38-42 of the ‘809 app., “A TCB is a structure that contains the entire context associated with a connection. This includes the source and destination IP addresses and source and destination TCP ports that define the connection. It also contains information about the connection itself such as the current send and receive sequence numbers, and the first-hop MAC address, etc.”

Further, according to page 49, lines 42-44 of the ‘809 app., “A TCB is associated with an input frame when the frame’s source and destination IP addresses and source and destination ports match that of the TCB.”

As stated on page 8, lines 9-12 of the ‘809 app., “When this small amount of data is passed up to the client, and it returns with the address in which to put the remainder of the data, our host transport driver will pass that address to the INIC which will DMA the remainder of the data into its final destination.”

Similarly, page 19, line 6 – page 23, line 4 of the ‘809 app. describes how a “MDL” (memory descriptor list) is obtained from the host and passed as a “receive request” including a “TCP context identifier” (i.e., a TCB identifier) to the network interface,

for the block of data,” whereas claim 48, which depends from claim 41, defines that the “TCB” includes the exact same things. Further, claim 9, which depends indirectly from claim 1, defines that the “flow specification” includes “IP source and destination addresses and TCP port numbers,” whereas claim 49, which depends indirectly from claim 41, defines that the “TCB” includes the exact same things. Thus, the only terms that differ between claim 1 of the ‘683 patent and pending claim 41 actually are defined to include the same items.

Moreover, according to column 5, lines 9-13 of the ‘683 patent, “the call made by the TCP/IP stack sends down to the MAC driver the flow specification established for this read beforehand, including the source and destination IP addresses, and the source and destination port numbers (i.e. sockets).”

Further, according to column 2, lines 25-31 of the ‘683 patent, “Upon receiving a packet, the control data of the packet is read in the network interface, and if the packet belongs to a flow specification subject of the bypass, the data payload of the packet is transferred to a buffer assigned by a layer higher in the stack, preferably by the application or file system, bypassing one or more intermediate buffers of the protocol stack.” Similarly, according to column 2, lines 41-45 of the ‘683 patent, “At the network interface, the plurality of packets is received, and their control fields, such as TCP/IP headers, are read. If they fall within the set up flow specification, the payloads are bypassed directly into the target buffer.” Likewise, as stated in column 5, lines 16-19 of the ‘683 patent, “The target buffer specifies where the payload should be stored when possible by the network interface card. The flow specification specifies how to identify

for "transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer" upon "determining based on the control field in the network interface whether the packet matches a transmit control block (TCB)."

Therefore, claim 1 of the '683 patent differs from claim 41 of the '809 app. only in the term "flow specification" compared to TCB, but those terms are defined to include the same items and perform the same function in the claim. It would have been obvious for one of ordinary skill in the art to simply substitute the term "flow specification" for the term "TCB" to achieve the same result in claim 1 as that defined in claim 41. See MPEP § 2141.

packets that are part of this session."

Although there is no difference between the term "flow specification" as used in claim 1 of the '683 patent and the term "TCB" as used in pending claim 41, the '683 patent specification explains that the "flow specification" is only passed from a host computer to its network interface when a "read request" is made by the computer to a remote computer, with the "flow specification" serving as a guide to the response to that "read request," whereas the pending application explains that the "TCB" is established by a host computer and passed to its network interface for use in transmitting data as well as in receiving data for either a "read request" or a "write request," with the "destination" buffer for a "read request" associated with the TCB held by the network interface at a time immediately prior to data transfer between the host and the network interface. Similarly, in transmitting data, the TCB is passed out to the network interface first, and the target buffer from which the data is sent is associated with the TCB immediately prior to data being transmitted.

Because transferring a TCB that may have rapidly changing and interrelated state from a host to its network interface is more difficult than transferring a read request along with its related IP addresses and TCP ports, and because transferring such a TCB is useful not only for a read request but for a write request as well as for transmitting data, there is a question whether pending claim 41 is obvious over claim 1 of the '683 patent. The question is whether these differences in the specifications should be read into the claims. Because there is no explicit definition of the term "flow specification" or the term "TCB" in the specifications (although the dependent

	claims provide some definitions) and because there is no prosecution history that requires limitations of the specifications to be read into the claims, pending claim 41 and claim 1 of the '683 patent should be read broadly, so that pending claim 41 would have been obvious over claim 1 of the '683 patent.
<p>2. The method of claim 1, wherein the control field in the packet includes a packet header.</p> <p>Applicants submit that pending claim 42 would have rendered obvious claim 2 of the '683 patent because the claims are identical except for the term "flow specification" compared to the term "TCB" as discussed above with regard to the independent claims.</p>	<p>42. The method of claim 41, wherein the control field in the packet includes a packet header.</p> <p>Applicants submit that claim 2 of the '683 patent would have rendered obvious pending claim 42 because the claims are identical except for the term "flow specification" compared to the term "TCB" as discussed above with regard to the independent claims.</p>
<p>3. The method of claim 1, wherein the multi-layer network protocol comprises TCP/IP, and the control field comprises a TCP/IP header.</p> <p>Applicants submit that pending claim 43 would have rendered obvious claim 3 of the '683 patent because the claims are identical except for the term "flow specification" compared to the term "TCB" as discussed above with regard to the independent claims.</p>	<p>43. The method of claim 41, wherein the multi-layer network protocol comprises TCP/IP, and the control field comprises a TCP/IP header.</p> <p>Applicants submit that claim 3 of the '683 patent would have rendered obvious pending claim 43 because the claims are identical except for the term "flow specification" compared to the term "TCB" as discussed above with regard to the independent claims.</p>
<p>4. The method of claim 1, including prior to receiving the packet, allocating the target buffer for the plurality of packets, and notifying the network interface of the allocated target buffer.</p> <p>Applicants submit that pending claim 44 would have rendered obvious claim 4 of the '683 patent because the claims are essentially identical except for the term "flow specification" compared to the term "TCB" as discussed above with regard to</p>	<p>44. The method of claim 41, including prior to receiving the packet, allocating the target buffer for a plurality of packets, and notifying the network interface of the allocated target buffer.</p> <p>Applicants submit that claim 4 of the '683 patent would have rendered obvious pending claim 44 because the claims are essentially identical except for the term "flow specification" compared to the term "TCB" as discussed above with regard to</p>

the independent claims.	the independent claims.
<p>5. The method of claim 1, the network interface is coupled to a network medium supporting a maximum packet size, and including transmitting a request from an application for transfer of a block of data from the data source, the block of data having a length potentially greater than the maximum packet size for the medium.</p> <p>Applicants submit that pending claim 45 would have rendered obvious claim 5 of the '683 patent because the claims are identical except for the term "flow specification" compared to the term "TCB" as discussed above with regard to the independent claims.</p>	<p>45. The method of claim 41, the network interface is coupled to a network medium supporting a maximum packet size, and including transmitting a request from an application for transfer of a block of data from the data source, the block of data having a length greater than the maximum packet size for the medium.</p> <p>Applicants submit that claim 5 of the '683 patent would have rendered obvious pending claim 45 because the claims are identical except for the term "flow specification" compared to the term "TCB" as discussed above with regard to the independent claims.</p>
<p>6. The method of claim 5, including notifying the network interface in response to the request of the flow specification for the block of data according to the multi-layer network protocol, and wherein the step of receiving the packet includes identifying packet using the flow specification.</p> <p>Applicants submit that pending claim 46 would have rendered obvious claim 6 of the '683 patent because the claims are essentially identical except for the term "flow specification" compared to the term "TCB" as discussed above with regard to the independent claims.</p>	<p>46. The method of claim 45, including notifying the network interface in response to the request of a TCB for the block of data according to the multi-layer network protocol, and wherein the step of receiving the packet includes identifying packet using the TCB.</p> <p>Applicants submit that claim 6 of the '683 patent would have rendered obvious pending claim 46 because the claims are essentially identical except for the term "flow specification" compared to the term "TCB" as discussed above with regard to the independent claims.</p>
<p>7. The method of claim 6, wherein the network protocol comprises TCP/IP, and the flow specification includes a sequence number of a first byte from the plurality of packets to be stored in the target buffer.</p> <p>Applicants submit that pending claim 47 would have rendered obvious claim 7 of the '683 patent because the claims are essentially identical except for the term</p>	<p>47. The method of claim 46, wherein the network protocol comprises TCP/IP, and the TCB includes a sequence number of a first byte from a plurality of packets to be stored in the target buffer.</p> <p>Applicants submit that claim 7 of the '683 patent would have rendered obvious pending claim 47 because the claims are essentially identical except for the term</p>

<p>“flow specification” compared to the term “TCB” as discussed above with regard to the independent claims.</p>	<p>“flow specification” compared to the term “TCB” as discussed above with regard to the independent claims.</p>
<p>8. The method of claim 1, wherein the flow specification includes a sequence number for the block of data.</p> <p>Applicants submit that pending claim 48 would have rendered obvious claim 8 of the ‘683 patent because the claims are essentially identical except for the term “flow specification” compared to the term “TCB” as discussed above with regard to the independent claims.</p>	<p>48. The method of claim 41, wherein the TCB includes a sequence number for a block of data.</p> <p>Applicants submit that claim 8 of the ‘683 patent would have rendered obvious pending claim 48 because the claims are essentially identical except for the term “flow specification” compared to the term “TCB” as discussed above with regard to the independent claims.</p>
<p>9. The method of claim 8, wherein the flow specification includes IP source and destination addresses and TCP port numbers.</p> <p>Applicants submit that pending claim 49 would have rendered obvious claim 9 of the ‘683 patent because the claims are essentially identical except for the term “flow specification” compared to the term “TCB” as discussed above with regard to the independent claims.</p>	<p>49. The method of claim 8, wherein the TCB includes IP source and destination addresses and TCP port numbers.</p> <p>Applicants submit that claim 9 of the ‘683 patent would have rendered obvious pending claim 49 because the claims are essentially identical except for the term “flow specification” compared to the term “TCB” as discussed above with regard to the independent claims.</p>

F. Detailed Explanation why Applicants Will Prevail on Priority

Applicants note that the instant application number 09/692,561 is a continuation of application number 09/067,544, which was filed April 27, 1998, several days prior to the filing date of the ‘683 patent. The present application also incorporates by reference parent application number 09/067,544. Because applicants are entitled to the benefit of filing date of parent application number 09/067,544 under 37 CFR §1.601(g), applicants are the Senior Party according to 37 CFR §41.201 and are entitled to the presumption of priority under 37 CFR §41.207(a)(1).

Applicants also point out that the instant application number 09/692,561, as well as parent application number 09/067,544, claim priority from provisional application

number 60/061,809, which was filed October 14,1997, more than six months prior to the filing date of the '683 patent. Moreover, applicants note that both the instant application number 09/692,561 and parent application number 09/067,544 incorporate by reference provisional application number 60/061,809. Because applicants are entitled to the benefit of filing date of provisional application number 60/061,809 under 37 CFR §1.601(g), applicants are the Senior Party according to 37 CFR §41.201 and are entitled to the presumption of priority under 37 CFR §41.207(a)(1).

Applicants show in detail below why each of interfering claims 41-49 is entitled to the benefit of the filing date of parent application number 09/067,544, as well as being entitled to the benefit of the filing date of provisional application number 60/061,809. In the following claim chart, applicants list disclosures in applicants' applications that provide support for the pending claims. For convenience, the present application is labeled A1, parent application number 09/067,544 is labeled A2, and provisional application number 60/061,809 is labeled A3. Because A1 is a continuation of A2 and has an identical specification (and incorporates by reference A2), aside from a shifting of line numbers due to an extra priority claim at the beginning of A2, for clarity and simplicity applicants will not, in the following claim chart, list disclosures in A1 that are essentially redundant with those of A2.

G. Showing of Support in Earlier Applications for the Pending Claims

Applicants submit the following chart showing support in earlier applications (A1, A2 and A3) for pending claims 41-49.

Showing of Support in Earlier Applications for the Pending Claims

Pending Claims	Disclosure in Applicants' Applications
41. (New) A method for transferring data on a network from a data source to an end station	<p>[A2, page 7, line 8 through page 8, line 8] Figures 1-8 relate to a "first embodiment".</p> <p>[A2, page 9, Fig. 1, and lines 2-8] In Fig. 1, remote host 22 is a data source; and host 20 is an end station. Host 20 includes a CPU 28 and a CPD 30. As illustrated, CPD 30 interfaces host 20 to network 25.</p> <p>[A3, page 2, lines 36-37] "A 64k SMB request (write or read-reply) is typically made up of 44 TCP segments when running over Ethernet"</p> <p>[A3, page 3, lines 34-35] "Alacritech was formed with the idea that the network processing described above could be offloaded onto a cost-effective Intelligent Network Interface Card (INIC)."</p> <p>[A3, page 4, lines 18-19] Source IP address denotes a data source.</p>

<p>executing a multi-layer network protocol, including a network layer and at least one higher layer,</p> <p>through a network interface on the end station, comprising:</p>	<p>[A3, page 6, lines 1-20] The figure shows an end station.</p> <p>[A2, page 9, lines 13-15] CPU 28 of host 20 executes a protocol processing "stack" 44. The "stack 44" includes a "network layer" 38 and a "transport layer" 40.</p> <p>[A3, page 6] The figure shows a multi-layer network protocol, including a network layer and at least one higher layer.</p> <p>[A3, page 18, lines 22-26] "This section outlines the design specification for the Alacritch TCP (ATCP) transport driver. The ATCP driver consists of three components: 1. The bulk of the protocol stack is based on the FreeBSD TCP/IP protocol stack. This code performs the Ethernet, ARP, IP, ICMP, and (slow path) TCP processing for the driver..."</p> <p>[A2, FIG. 1] CPD 30 interfaces host 20 to network 25.</p> <p>[A3, page 6] The figure shows the INIC interfacing the end station to the Ethernet network.</p>
<p>receiving in the network interface a packet which carries a data payload from a block of data in the data source, and a control field identifying the packet;</p>	<p>[A2, page 11, lines 14-18] A "TCP/IP message" is "received by the host from the network" in the form of many separate "frames" or "packets" (an initial packet, and subsequent packets).</p> <p>[A2, page 4, line 20-23] "Each layer of the receiving host recognizes and manipulates only the headers associated with that layer, since to that layer the higher layer control data is included with and indistinguishable from the payload data."</p> <p>[A2, page 15, lines 4-6] One of the "subsequent packets" is received from network 25 by CPD 30. This packet includes a "packet header" and "data".</p> <p>[A2, page 12, lines 1-3] "...each packet conventionally includes a portion of data being transferred, as well as headers for each of the protocol layers and markers for positioning the packet relative to the rest of the packets of this message".</p> <p>[A3, page 2, lines 36-37] "A 64k SMB request (write or read-reply) is typically made up of 44 TCP segments when running over Ethernet"</p> <p>[USP 6,246,683, column 2, lines 59-65] "the process for requesting the transfer of a file from a data source involves issuing a read request according to higher layer protocol, such as the READ RAW SMB (server message block) command specified according to the Common Internet File System protocol (See, paragraph 3.9.35 of CIFS/1.0 draft dated Jun. 13, 1996) executed in Windows platforms."</p> <p>[A3, page 2, lines 29-30] "The TCP connection object must be located when a given TCP segment arrives, IP header checksums must be calculated..."</p>
<p>determining based on the control field in the network interface</p> <p>whether the packet matches a transmit control block (TCB),</p>	<p>[A2, page 15, lines 4-12] The packet "header" of the subsequent packet is "parsed to create a summary of the message packet and a hash for finding a corresponding CCB..."</p> <p>[A3, page 4, lines 1-10] NIC processes IP and TCP headers.</p> <p>[A3, page 7, lines 13-16] "When a frame is received by the INIC, it must verify it completely before it even determines whether it belongs to one of its TCBs or not. This includes all header validation (is it IP, IPV4 or V6, is the IP header checksum correct, is the TCP checksum correct, etc)."</p> <p>The term "TCB" corresponds to the term "CCB" as the term is used in [A2].</p> <p>[A2, page 24, lines 13-18] "A CCB includes connection and state information regarding the protocol layers and packets of the message. Thus a CCB can include source and destination media access control (MAC) addresses, source and destination IP or IPX addresses, source and destination TCP or SPX ports, TCP variables such as timers, receive and transmit windows for sliding window protocols, and information denoting the session layer protocol".</p> <p>[A2, page 15, lines 9-12] "The processor 55 checks for a <i>match</i> between the hash and each CCB that is stored in the cache 62 and, finding a match, sends the <i>data</i> (D2) 70 via a fast-path <i>directly to the destination</i> in storage 35..." (emphasis added).</p> <p>[A3, page 2, lines 13-18] "When a frame is received by the INIC, it must verify it completely before it even determines whether it belongs to one of its TCBs or not. This</p>

<p>and if so transferring the data payload in the packet directly to a target buffer assigned by a process at a layer higher than the network layer.</p>	<p>includes all header validation (is it IP, IPV4 or V6, is the IP header checksum correct, is the TCP checksum correct, etc). Once this is done it must compare the source and destination IP address and the source and destination TCP port with those in each of its TCBs to determine if it is associated with one of its TCBs."</p> <p>[A3, page 7, lines 16-18] "Once this is done it must compare the source and destination IP address and the source and destination TCP port with those in each of its TCBs to determine if it is associated with one of its TCBs."</p> <p>[A2, page 12, line 21 through page 13, line 5] "All received message frames which have been determined by the CPD hardware assist to be fast-path candidates are examined 53 by the network microprocessor on INIC comparator circuits to determine whether they match a CCB held by the CPD. Upon confirming such a match, the CPD removes lower layer headers and sends 69 the remaining application data from the frame directly into its final destination in the host using direct memory access (DMA) units of the CPD. This operation may occur immediately upon receipt of a message packet, for example when a TCP connection already exists..." (emphasis added).</p> <p>[A2, page 18, lines 2-3] The "application layer 166...provides a source or destination 168 for the communication data..."</p> <p>[A3, page 3, lines 38-39] "The vast majority of the data is moved directly from the INIC into its final destination. A single trip across the system memory bus."</p> <p>[A3, page 7, lines 38-39] A received frame's source and destination IP addresses and source and destination TCP ports are parsed by the INIC to see if it matches a TCB.</p> <p>[A3, page 7, line 42 – page 8, line 44] Landing the received data in its final destination, which is a target buffer on the host, is accomplished by passing a upper layer header to the host NetBIOS or other upper layer protocol, which returns a memory address that the INIC uses to DMA the remainder of the data into as it arrives in packets on the INIC that match the TCB.</p> <p>[A3, page 8, lines 9-12] "When this small amount of data is passed up to the client, and it returns with the address in which to put the remainder of the data, our host transport driver will pass that address to the INIC which will DMA the remainder of the data into its final destination."</p> <p>[A3, page 11, lines 5-34] see entire Fast-path 56k NetBIOS session message example. "When the INIC receives the command buffer, it will DMA the remainder of the NetBIOS data, as it is received, into the memory address or addresses designated by the host."</p>
<p>42. The method of Claim 41,</p> <p>wherein the control field is a packet header.</p>	<p>[A2, page 13, line 1] "Upon confirming such a match, the CPD removes lower layer headers and sends 69 the remaining application data from the frame directly into its final destination in the host ..."</p> <p>[A3, page 7, lines 13-14] "When a frame is received by the INIC, it must verify it completely before it even determines whether it belongs to one of its TCBs or not. This includes all header validation (is it IP, IPV4 or V6, is the IP header checksum correct, is the TCP checksum correct, etc)."</p>
<p>43. The method of claim 41,</p> <p>wherein the multi-layer network protocol comprises TCP/IP,</p> <p>and the control field comprises a TCP/IP header.</p>	<p>[A2, page 11, line 15] The message being received by the host is a "TCP/IP message".</p> <p>[A3, page 18, lines 22-26] "This section outlines the design specification for the Alacritch TCP (ATCP) transport driver. The ATCP driver consists of three components: 1. The bulk of the protocol stack is based on the FreeBSD TCP/IP protocol stack. This code performs the Ethernet, ARP, IP, ICMP, and (slow path) TCP processing for the driver..."</p> <p>[A2, page 12, lines 1-3] "...each packet conventionally includes a portion of the data being transferred, as well as headers for each of the protocol layers..."</p> <p>[A2, page 12, lines 9-12] "Selection of fast-path candidates is based on whether the host may benefit from this message connection being handled by the CPD, which includes determining whether the packet has header bytes denoting particular protocols, such as</p>

	<p>TCP/IP..."</p> <p>[A3, page 7, lines 13-14] "When a frame is received by the INIC, it must verify it completely before it even determines whether it belongs to one of its TCBs or not. This includes all header validation (is it IP, IPV4 or V6, is the IP header checksum correct, is the TCP checksum correct, etc)."</p>
<p>44. The method of claim 41,</p> <p>including prior to receiving the packet, allocating the target buffer for a plurality of packets, and notifying the network interface of the allocated target buffer.</p>	<p>[A2, page 15, lines 1-5] Prior to receiving the "subsequent packet" as set forth on page 15, the "initial packet" is received.</p> <p>[A2, page 14, lines 16-28] The host uses the "initial packet" to "to create a connection context for the message, including finding and reserving a destination for the data from the message associated with the packet, the context taking the form of a CCB..."</p> <p>[A2, page 14, line 18] "The CCB is then sent to the CPD 30 to be saved in cache 62..."</p> <p>[A3, page 8, lines 9-12] "When this small amount of data is passed up to the client, and it returns with the address in which to put the remainder of the data, our host transport driver will pass that address to the INIC which will DMA the remainder of the data into its final destination."</p>
<p>45. The method of claim 41,</p> <p>wherein the network interface is coupled to a network medium supporting a maximum packet size,</p> <p>and including transmitting a request from an application for transfer of a block of data from the data source, the block of data having a length potentially greater than the maximum packet size for the medium.</p>	<p>[A3, page 21, lines 14-47] "As soon as the INIC has received a segment containing a NETBIOS header, it will forward it up to the TCP driver, along with the NETBIOS length from the header.... On receiving the indicated packet, the ATCP driver will call the receive handler registered by the TDI client for the connection, passing the actual size of the data in the packet from the INIC as "bytes indicated" and the NETBIOS length as "bytes available"... In the "large data input" case, where "bytes available" exceeds the packet length, the TDI client will then provide an MDL... The ATCP driver will build a "receive request" from the MDL information, and pass this to the INIC. This request will contain:... A list of physical addresses corresponding to the MDL pages."</p> <p>[A2, page 11, lines 14-18] "A large TCP/IP message ... may be received by the host ...in a number of separate, approximately 64 KB transfers, each of which may be split into many, approximately 1.5 KB frames or packets for transmission over a network."</p> <p>[A3, page 6] The figure shows the INIC coupled to the Ethernet network.</p> <p>[A3, page 2, line 37] "Ethernet (1500 byte MTU)."</p> <p>[A2, page 29, line 20 through page 30, line 14] SMB is an application. An SMB read "request" to read a "100KB file" is transmitted from INIC 150 to server 290. Server 290 (INIC 200 of server 290) sends the 100 KB file back to INIC 150 as multiple "packets".</p> <p>[A3, page 2, lines 36-37] "A 64k SMB request (write or read-reply) is typically made up of 44 TCP segments when running over Ethernet (1500 byte MTU)."</p> <p>[A3, page 4, line 37] "a single 64k SMB write is broken down into 44 1500 byte TCP segments, which are in turn broken down into 131 576 byte IP fragments."</p>
<p>46. The method of claim 45,</p> <p>including notifying the network interface in response to the request of the TCB for the block of data according to the multi-layer network protocol,</p> <p>and wherein the step of receiving the packet includes identifying packet using the TCB.</p>	<p>[A2, page 14, line 14 through page 15, line 3] The first packet received is sent "to the host protocol stack 44 for processing. Host stack 44 may use this packet to create a connection context for the message...the context taking the form of a CCB...The CCB is then sent to the CPD 30 to be saved in cache 62."</p> <p>[A2, page 15, lines 4-14] When "a subsequent packet from the same connection as the initial packet" is received, the receiving INIC checks "for a match between the hash and each CCB that is stored in the cache 62 and, finding a match..."</p> <p>[A2, page 24, lines 7-9] "A TCP/IP...message has a connection that is set up from which a CCB is formed by the driver and passed to the INIC for matching with and guiding the</p>

	fast-path packet to the connection destination 168".
47. The method of claim 46, wherein the network protocol comprises TCP/IP, and the TCB includes a sequence number from a plurality of packets to be stored in the target buffer.	[A3, page 6, lines 38-41] "A TCB is a structure that contains the entire context associated with a connection. This includes the source and destination IP addresses and source and destination TCP ports that define the connection. It also contains information about the connection itself such as the current send and receive sequence numbers."
48. The method of claim 41, wherein the TCB includes a sequence number for a block of data.	[A3, page 6, lines 38-41] "A TCB is a structure that contains the entire context associated with a connection. This includes the source and destination IP addresses and source and destination TCP ports that define the connection. It also contains information about the connection itself such as the current send and receive sequence numbers."
49. The method of claim 48, wherein the TCB includes IP source and destination addresses and TCP port numbers.	[A3, page 6, lines 38-41] "A TCB is a structure that contains the entire context associated with a connection. This includes the source and destination IP addresses and source and destination TCP ports that define the connection. It also contains information about the connection itself such as the current send and receive sequence numbers."

III. Conclusion

Applicants have responded to each of the items in the Office communication, and again respectfully request that an interference with the '683 patent be declared.

Respectfully submitted,

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